



## 2013 "VOLUNTEERS WORKING WITH INVASIVES" GRANTS REPORT FORM

### Display Report

#### PROJECT BACKGROUND INFORMATION

<b>Project Title:</b>	Palmyra Atoll NWR Invasive Plant Management: Eradicate/Control	
<b>Region: Use region number ONLY</b>	1	
<b>Station:</b>	Palmyra Atoll National Wildlife Refuge	
<b>Contact Person:</b> Name and Phone Number	Amanda Pollock 808-792-9551	
<b>Project Description:</b> (Up to 250 words)	Remote atoll ecosystems are havens of biological diversity, but vulnerable to ecological invasion. The prosperity of the plants and animals that inhabit remote atoll ecosystems are dependent on an intact healthy ecosystem free of invasive species. On Palmyra, invasive plants are unraveling well established relationships between terrestrial organisms, by crowding out native species and completely altering the landscape and habitat. Several of these invasive species are nitrogen fixing and/or allelopathic, and can cause wholesale ecosystem shifts when they become dominant. This project will initiate a proactive, adaptive and integrated invasive species management approach to curtail and prevent the further influence of invasive plants and trees on private and refuge lands at Palmyra. This two year project will focus on: 1) Restoration of biological habitat integrity through chemical and mechanical control/eradication of focal invasive species; 2) Volunteer training in the detection, eradication, and control methods so that no lag time occurs by the response team following the detection of an invasion; 3) Early Detection Rapid Response efforts, as outlined in the Biosecurity Plan for Palmyra, to detect new invasive species and increase the likelihood that invasions are localized and within containment/eradication capabilities; and 4) Adaptive Management through post-treatment monitoring and sampling to measure the extent to which our actions contribute to positive change and assure the highest return on our investments.	
<b>List of Invasives Species Targeted:</b>	<b>Common Name</b>	<b>Scientific Name</b>
	Coconut Palm	<i>cocos nucifera</i>
	Devils Ivy	<i>Epipremnum aureum</i>
	Sour bush	<i>Pluchea indica</i>
<b>Project Status:</b>	InProgress	
<b>Project Completion Date or Estimated Completion</b>	12/31/2016	

**Date:** (mm/dd/yyyy)

## VOLUNTEER INFORMATION

<b>Volunteer Affiliation:</b> (Check all that apply)	VA_StudentConsAssoc    VA_CivicOrg    VA_Other
<b>Volunteer Involvement:</b> Describe the type of work the volunteers performed. (Up to 150 words)	Volunteers participate in coconut Palm control by using machetes to chop the live growth off of seedlings and then spray the stump with Roundup herbicide. Seedlings were also pulled out along the North Beach of Cooper Island by hand. Adult palms are treated with a method called drill and fill, where 8-10 holes are drilled in the palms base with a battery powered cordless drill, and 3/8 inch drill bit to a depth of 2 inches, and the holes are filled with Roundup herbicide. Pluchea spp were either sprayed with Roundup herbicide via a back pack sprayer or hand pulled. Invasive plant species were also mapped throughout the atoll with handheld GPS units.
<b>Total Number of Volunteers:</b>	12
<b>Total Number of Volunteer Hours:</b>	122
<b>Partnerships:</b> List both new and existing partnerships utilized in this project. (Up to 150 words).	: The Palmyra Atoll NWR is fortunate to have established USFWS partnerships with The Nature Conservancy (TNC) and nine academic institutions that comprise the Palmyra Atoll Research Consortium (PARC). Volunteers from USFWS, TNC, and PARC will work on refuge lands to eradicate and control invasive species.

## PROJECT RESULTS

<b>Project Results:</b> Give an overview of the results of the project. Include quantifiable measure of success, such as maps produced, efficacy of control measures, number of sites where invasions were detected early and responded to, number of community contacts, etc. (Up to 250 words).	In 2013 Palmyra Atoll National Wildlife Refuge was awarded \$20,000 for invasive species removal with volunteers and this grant has been the sole funding for the Palmyra volunteer program. The 608 acres of Palmyra Atoll are continually monitored for invasive species. Haole Koa, Indian almond and Ironwood are found only on Cooper Island; Coconut palms are found throughout the atoll; and Devil's vine are found on Engineer, Kaula and Cooper Islands, and Pluchea spp are found on Cooper and Strawn Islands. To date approximately 48 acres have been treated for coconut palms, with 22 acres treated in 2013, on 9 islands, with over 1481 adult trees and 10,000 seedlings treated in 2013. Over 500 coconut seedlings were also pulled by hand along the North Beach of Cooper Island in an effort to create nesting habitat for threatened green sea turtles that have been nesting on the beach in 2013. The removal of coconut palms in densely forested areas allows for the few native species to reestablish in these areas. Where coconut palms have been treated, native species have been observed to thrive and recruit naturally with the increased habitat and decrease in competition. In addition to control and eradication 100 acres have been inventoried and mapped for invasive species. The extent of the invasive Devil's vine was mapped on Engineer and Kaula Islands, with a total of 13.64 acres, and control methods will be trialed in 2014. Pluchea indica or sour bush, was also mapped on Cooper Island (owned by the Nature Conservancy), and control work is ongoing with 8 acres treated by spraying and hand pulling.
<b>Number of Acres Treated:</b>	30
<b>Number of Acres Inventoried and/or Mapped:</b>	25
<b>Number of Acres Restored:</b>	26

## BUDGET INFORMATION

**Budget:** Account for funds in broad categories such as equipment, volunteer stipends, travel, coordinator salary/contract, etc.

<b>Total Grant Amount:</b>	\$ \$20,000.00
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**Breakdown of Expenditures:**

Category	Total \$ Spent	% of Total Grant
Equipment / Supplies	\$4,647.00	23%
Chemical	\$1,560.00	8%
Biocontrol Agents		
Travel	13,793.00	69%
Volunteer Stipends		
Volunteer Coordinator Salary/Contract		
Restoration Materials		
Other		
<b>TOTAL</b>	<b>20,000.00</b>	<b>100%</b>

<b>Recommendations:</b> (OPTIONAL) How useful was this program for meeting refuge invasive species objectives and how can it be improved?	This is an ongoing project that would not be possible without the support of the Invasive species and volunteers grant. Continued monitoring and removal of invasive species in both early and late stages is critical in restoring the ecosystem at Palmyra Atoll.
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